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A State Level Analysis of Teach For America's Impact on Student Achievement

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Introduction

The factors influencing student achievement in America's public schools are numerous. Among the most influential is teacher quality (Rivkin, Hanushek, and Kane 2005). Good teachers are able to improve the performance of their students and produce academic success well beyond the time students spend within a particular teacher's classroom (Sanders and Rivers 1996). In recent years, policy makers have acknowledged the need to provide students with better teachers especially in low-income schools. Most notably, the No Child Left Behind Act of 2001 requires all teachers to be "highly qualified" meaning they must have a bachelors degree, full state certification and have a demonstrated knowledge of the subject matter they teach (Boehner 2001). Despite this stipulation, there is much debate in education circles as to what degree each of these factors matters in determining student achievement.

On one side, there are those who feel teachers need strong preparation and training to be successful in producing academic gains for their students. Skills such as classroom management and content delivery contribute a great deal to the success or failure of a teacher. These skills are not innate but rather learned and developed through teacher training programs and education courses. Supporters of this view cite the numerous studies which have shown teacher certification and training to have a positive effect on student achievement (Darling-Hammond 2000; Fetler 1999; Goldhaber and Brewer 2000; Wenglinsky 2000). They argue states must improve certification programs in order to become 'highly qualified'.

Others argue that simply having a certification does not make a teacher qualified. What really matters is a strong academic background and subject specific knowledge (Ballou and Podgursky 2000; Monk 1994). Advocates of this view urge reformers to focus more on attracting top students into the teaching profession because despite a lack of formal training they have the ability to learn and adapt quickly to the challenges of teaching. One program which has made great strides in attracting this type of individual into teaching is Teach for America.

Teach for America (TFA) is a non-profit organization which "aims to eliminate disparities in educational outcomes" through its unique system of teacher recruiting and training (Heilig and Jez 2010). TFA recruits its corps members from the top colleges and universities in the United States to teach for two years at low-income schools throughout the country. Beginning in 1990 with 500 recent college graduates teaching in 6 low-income communities, TFA has grown tremendously over its twenty year existence. Today TFA employs over 8,000 corps members in 39 regions ("History – Teach For America" 2010). Not only is the overall growth of TFA impressive, but its ability to attract top students is exceptional. According to *The New York Times*, it was the number-one employer for graduating seniors at more than 20 schools including Yale, Duke and Georgetown (Winerip 2010).

Despite the strong academic backgrounds and leadership abilities of TFA corps members, almost all have no prior experience or training in education. According to a study conducted by Decker, Mayer and Glazerman only 3 percent of TFA corps members in a national sample had a bachelors degree in education (2004, 16). Additionally, a

majority of TFA teachers go into their first year of teaching without a standard teaching certification. In many ways the debate about TFA encapsulates the entire debate on teacher preparation and quality. Critics of the program argue this lack of formal training is a recipe for disaster because the least prepared teachers are being sent into the most difficult schools to teach in. Proponents counter that many of these schools are full of certified teachers, yet they still perform far worse than average. They believe that bringing in talented and energized young teachers will invigorate the students and their schools.

This study will investigate the impact of TFA on student achievement measured at the state level. Panel data from grades 4 and 8 are analyzed to examine how the presence of TFA corps members in a state impacts student test scores compared to states which have no TFA corps members.

Previous Research

While Teach for America has operated for almost two decades, research on the program has only recently begun to accumulate. One of the earliest studies was done in Arizona by Laczko-Kerr and Berliner. The authors analyzed aggregate classroom-level SAT-9 mathematics, reading and language arts scores for 109 matched pairs of recently hired teachers (2002). No differences in student performance were found between TFA teachers and other uncertified teachers. Additionally, both TFA and uncertified teachers significantly underperformed compared to standard certified teachers by approximately 20%. The results of this study have been criticized because the data was aggregated at the

classroom level where prior student achievement and other individual factors are not considered. More recent studies have incorporated this data into their analysis.

A large scale study in Houston, Texas examined data from 132,000 students in grades 3 - 5 between 1995 and 2002 (Darling-Hammond, Holtzman, Gatlin and Heilig 2005). The study compared student exam results between TFA and non-TFA teachers with controls for years of teaching experience and student characteristics on the mathematics and reading sections of three different standardized tests: the SAT-9, a national test, and two Texas based tests, the TAAS and APRENDA (for Spanish speakers). For mathematics, the authors found a positive impact for TFA status on the TAAS but a negative impact on the SAT-9 and APRENDA, while in reading there was only a significant impact on the APRENDA which was negative. The authors speculated these mixed results were due to a change in the characteristics of the TFA cohort during the years of study most notably a decrease in the number of TFA teachers coming in with an education background.

Darling-Hammond et al. also examined the effects a teacher's certification status. For those TFA teachers who had not yet received standard certification (which involves taking education courses at an accredited university or college and passing a state examination), the authors found a negative impact on all three reading tests and 2 of the 3 math tests. After receiving a standard certification (usually after the first year teaching), TFA teachers did about as well as other certified teachers with similar education and experience levels, and they showed a statistically significant positive impact on the mathematics section of the TAAS.

New York City public schools were examined by Kane, Rockoff and Staiger who analyzed teacher effectiveness by the certification pathway taken (2008). Using a value-added model which compares the test scores of a student to their own previous scores as well as those of other students, the authors found that Teach for America teachers improved student math scores by approximately .02 of a standard deviation. Measurements of value added for reading were not statistically significant. Kane et al. also explored the question of whether the high turnover rate of Teach for America teachers negatively impacted student achievement. Their study found that having more years of teaching experience was strongly linked to teaching improvements in student outcomes especially in the first two to three years. Since TFA teachers are only required to make a two year commitment to teaching, students taught by TFA are much more likely to have a novice teacher. They estimated this impact to be -.01 to -.02 of a standard deviation in lower achievement. Thus when the value-added from a Teach for America certification is added to the negative impact of a high turnover rate the net effect is around zero for math and slightly negative for reading.

Decker, Mayer and Glazerman used an experimental approach in their 2004 Mathematica Inc. study of students in grades 1 - 5. Students were randomly assigned to one of 41 TFA or 57 control teachers. The Iowa Test of Basic Skills was then administered at the start of the school year to each student to establish a baseline achievement level. At the end of the year, the Iowa Test of Basic Skills was administered again to each student. By comparing the academic gains made by each group, the authors were able to estimate the impact TFA teachers had on their students relative to all other teachers. For mathematics, they estimated the TFA impact at approximately .15 of a

standard deviation, while in reading no impact was found. This positive impact in mathematics was even greater when the control group was restricted to only teachers with less than three years of experience amounting to approximately .26 of a standard deviation. Once again no impact was found in reading.

Most studies on the impacts of TFA have focused on elementary and middle school students, but more recent studies have attempted to extend their research into high school. The first such study was done by Xu, Hannaway and Taylor in North Carolina public high schools (2009). The TFA effect was measured by examining within-student variation across End-of-Course (EOC) examinations. Using this method, the authors found that TFA teachers produced about .10 of a standard deviation of improvement in their students as compared to all traditional teachers. When compared to teachers with only the SP1 license the impact increased to approximately .13 standard deviations. The SP1 license is typically given to teachers with 3 or fewer years experience after they have completed all the requirements to receive a traditional teacher's license. It should be noted that this study was criticized by the What Works Clearinghouse (WWC) of the U.S. Department of Education for its method of matching students to teachers because the authors linked each student to their test proctor instead of their classroom teacher (What Works Clearinghouse 2008). In response, the authors reexamined the data in their study in 2009. When they excluded all students whose proctor did not match their classroom teacher the impact of TFA on all subjects actually increased to .14 of a standard deviation (Xu, Hannaway, Taylor 2009).

Another large scale study conducted in North Carolina which compared new teachers from 12 entry 'portals' into teaching also found a significant positive impact from TFA (Henry et al. 2010). The authors divided new teachers into separate categories or 'portals' according to their education and preparation for teaching. Using a year-to-year value added model, the study found that when compared to recent graduates of the University of North Carolina's teacher preparation program, TFA teachers achieved better results in all high school subjects and in middle school math. No significant impact was found in elementary math or reading. Of all the teacher entry portals TFA was found to be "the portal that most consistently outperformed UNC undergraduate prepared teachers".

Noell and Gansle (2009) conducted a study in Louisiana on TFA teachers from grades 4 – 9 over a three year period beginning in the 2004 – 05 school year. The authors found TFA to have a significant positive impact in English, reading, math and science when compared to other first and second year teachers. A positive coefficient was also found when compared to all teachers, but these findings were not found to be statistically significant.

To date, the research on Teach for America is mixed. Several studies have shown a significant positive impact while others have shown negative impacts. Methodology seems to play an important part in determining these results. When the comparison group is uncertified teachers or other new teachers the results are much more likely to come out in favor of TFA. On the other hand when compared to certified teachers and those with more experience, the results have not been as promising. Similarly, the subjects and grade

levels examined also seem to play a role with more positive results tending to come from higher grade levels and courses in mathematics and science.

Data

Unlike previous research which has examined data at the individual student level, this study will focus on TFA effects at the state level. There are several reasons for this decision. First, the availability of data for this researcher was limited to the aggregate level. Due to this limitation, the use of state data was chosen for study because the presence of TFA within a state could be easily identified and matched with test results from that state. Additionally, the use of state data makes it possible to examine student achievement over the entire period in which TFA has been in operation. This allows for a greater number of observations from which to draw from.

Data from the National Assessment of Educational Progress (NAEP) is used in this analysis to track student achievement at the state level. The NAEP is an academic assessment given by the National Center for Educational Statistics (NCES) to a representative sample of 4^{th} and 8^{th} grade students in each state. Scores for mathematics and reading are graded on a scale from 0 to 300. Unlike assessments conducted by state education agencies, the NAEP is administered nationally allowing results from different states to be compared. The state NAEP began as a voluntary trial assessment in 1990 continuing with further trials in 1992 and 1994. In 1996, the trial status was dropped although participation still remained voluntary. The No Child Left Behind Act of 2001 changed the status of the state NAEP from voluntary to required for all states which receive Title I funding ("About State NAEP", 2010). For this study, scores in

mathematics and reading from 1990 to 2009 were collected for all participating states and the District of Columbia. The number of participating states (including the District of Columbia) for each assessment period is presented in Table 1.

Table 1. State Participation in NAEP Assessments, 1990 – 2009.

Year	4th Grade Math	4th Grade Reading	8th Grade Math	8th Grade Reading
1990	-	-	38	-
1992	42	42	42	-
1996	44	40	41	-
1998	-	40	-	37
2000	41	44	40	-
2002	-	-	-	42
2003	51	51	51	51
2005	51	51	51	51
2007	51	51	51	51
2009	51	51	51	51

An indicator variable was added to the dataset to denote the presence of TFA within a state during a given school year. Dates provided for the start date for TFA were found on the Teach for America website. Since the TFA dates correspond with the fall semester of a school year while NAEP dates correspond to the spring semester, linking of TFA status and test results was done on the basis of matching school years rather than matching calendar years. For example TFA began placing corps members in Missouri during the fall semester of the 2002-03 school year, so Missouri was not included as a TFA state in the 2002 assessment. Missouri was included in the 2003 assessment since it occurred within the same school year as TFA began placing teachers in the state. Table 2 shows the year which TFA began placing corps members in each state.

Table 2. First Year in which TFA placed teachers (fall semester).

STATE	Year	STATE (cont.)	Year
California	1990	Florida	2003
Louisiana	1990	Pennsylvania	2003
New York	1990	Nevada	2004
North Carolina	1990	South Dakota	2004
Maryland	1991	Connecticut	2006
Mississippi	1991	Hawaii	2006
Texas	1991	Tennessee	2006
District of Columbia	1992	Colorado	2007
New Jersey	1993	Indiana	2008
Arizona	1994	Massachusetts	2009
Georgia	2000	Minnesota	2009
Illinois	2000	Oklahoma	2009
New Mexico	2001	Wisconsin	2009
Missouri	2002	Alabama	2010
Delaware	2003	Michigan	2010
Florida	2003	Rhode Island	2010

Additional data on enrollment, dropout rates, student race, free lunch eligibility, expenditure per student and pupils per teacher was gathered using the Common Core of Data (CCD) from the NCES. The CCD is a collection of annual surveys collected from every school and district in the nation. All information from the school level up to state and national aggregate data is available publicly from the NCES website. State economic data was gathered from the Bureau of Economic Analysis, and crime statistics were taken from the Bureau of Justice Statistics.

Results

The first approach taken to assess TFA's impact was to look at how test scores and the amount of states with TFA varied over time. If the amount of states with TFA and test scores both trend in the same direction this would suggest a positive impact for TFA.

Conversely, if test scores decrease while the number of states with TFA increases it could mean that TFA is having a negative impact on student performance. Figure 1 show that over the 19 year period between 1990 and 2009 scores on the 8th grade Mathematics NAEP rose by approximately 20 points. Improvements were also seen in all other subjects (see appendix). Figure 2 shows that the upward trends in NAEP scores correspond with an increase in the number of states with TFA.

Figure 1. Average 8th Grade NAEP Mathematics Score. 1990-2009.

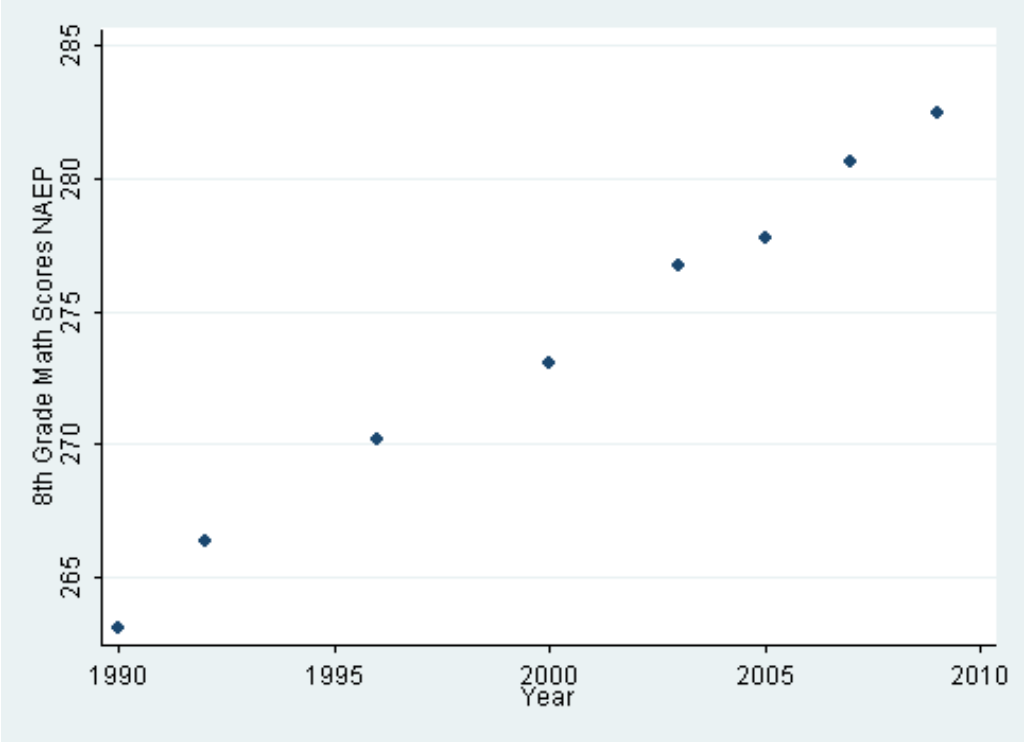
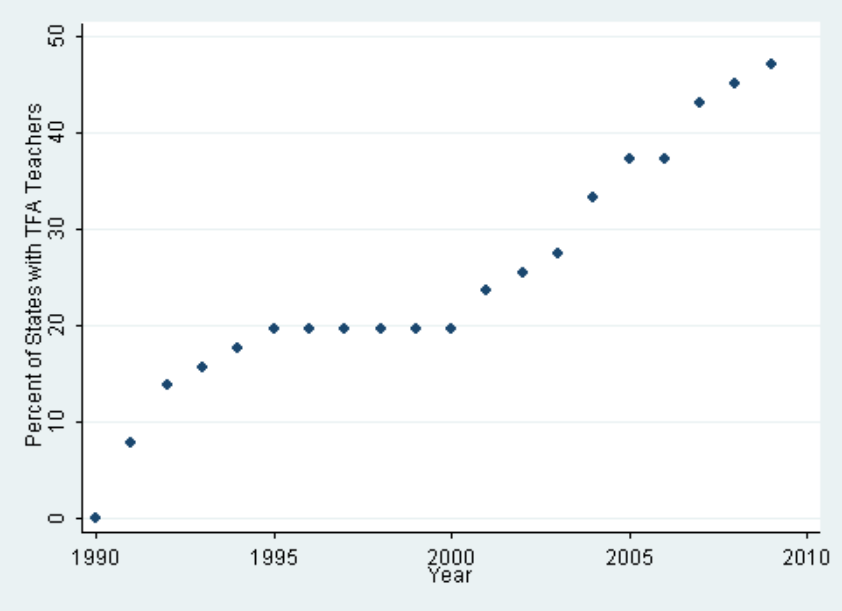


Figure 2. Percent of States with TFA Corps Members. 1990-2010.



These results would seem to suggest that TFA is having a positive impact because as the program grew so too did student achievement. However, the aggregate numbers may not tell the whole story because they do not specify which states made gains. It may be that states without TFA produced all the gains while states with TFA were stagnant. A simple comparison of the average scores for TFA and non-TFA states would provide these details, but these numbers may also not be a true representation of TFA's impact because states are very different from one another. As Table 3 in the appendix shows, state scores vary quite a bit. Some TFA states such as New Jersey have high test scores while others such as the District of Columbia are very low. This suggests there may be other factors besides TFA which impact student achievement. Table 4 illustrates the numerous factors influencing student achievement.

Table 4. Correlations between NAEP Results and Non-TFA factors.

Factors Impacting Achievement	4th Math	8th Math	4th Reading	8th Reading
Percent Asian	-0.0462	-0.0996	-0.1738	-0.2259
	0.4081	0.0616	0.0009	0.0001
Percent Black	-0.4237	-0.5428	-0.5546	-0.5577
	0	0	0	0
Percent Hispanic	0.0045	-0.0324	-0.192	-0.2627
	0.9362	0.5441	0.0002	0
Percent Native Am.	0.0468	0.1128	-0.0375	0.0043
	0.4023	0.0342	0.4762	0.9427
Free Lunch Eligible	-0.2633	-0.381	-0.5178	-0.6244
	0	0	0	0
Pupils Per Teacher	-0.3398	-0.2793	-0.3612	-0.2993
	0	0	0	0
Expenditure Per Student	0.5698	0.4278	0.2699	0.1051
	0	0	0	0.1105
Total Enrollment	0.0091	-0.0336	-0.1021	-0.1219
	0.8688	0.5219	0.0496	0.0405
Unemployment	0.0019	0.009	-0.0248	-0.0291
	0.972	0.8636	0.6348	0.6255
Percent Free Lunch Eligible Students	-0.2633	-0.381	-0.5178	-0.6244
	0	0	0	0
Per Capita Personal Income	0.5869	0.4631	0.2534	0.0653
	0	0	0	0.2733
Violent Crime Rate	-0.5996	-0.6655	-0.6892	-0.6592
	0	0	0	0
Property Crime Rate	-0.6588	-0.6554	-0.6824	-0.6006
	0	0	0	0

Note: standard error present in row below each factor

Linear regressions were utilized to account for these factors in the estimation model. Tables 5 – 8 in the appendix show the results of these regressions. In column one, the scores of states with TFA are compared with those where TFA was not present. In each of the four tests examined a negative coefficient was observed with three of the four tests statistically significant. For reading in both 4^{th} and 8^{th} grade, states with TFA scored over 5 points lower. Mathematics scores were not as negatively affected with TFA states

scoring approximately 2.6 points lower in 8th grade while no significant impact found in 4th grade math.

TFA is not randomly assigned, however. Its mission is to serve in underprivileged communities which typically are underachieving. Scores from states with TFA would then be expected to be lower because the students TFA serves perform worse than the average student. Column 2 adds into the regression estimates minority representation in the student population as well as student poverty which is estimated through the amount of students who are free lunch eligible. When these factors are taken into account the impact of TFA is found to be both positive and statistically significant. Further, the predictive power of the model increases significantly. States with TFA showed improvements in math scores in grades 4 and 8 of 5.7 and 7.4 points respectively. The gains in reading were 3.1 points for 4th grade and 2.3 for 8th grade.

Additionally, TFA may be assigned to states where teachers are faced with larger classrooms and less resources at their disposal. In these situations, TFA may appear to be performing worse than it really is because these other factors are contributing to lower test scores. Column 3 considers these factors alone and shows a statistically significant negative relationship between TFA and student test scores. Fourth grade math scores were 6.6 points lower in TFA states while 8th grade math scores were lowered by approximately 7.7 points. The results for reading were of a similar magnitude with 4th grade scoring approximately 8.6 points lower and 8th grade 6.7 points lower.

Socioeconomic factors also influence student achievement. When the state unemployment rate, per capita personal income, total population, violent crime and

property crime are controlled for in column 4, TFA once again shows a negative impact on student achievement. In 4th grade, students in TFA states scored approximately 2.4 points lower for math and 4.4 points lower in reading. Students in 8th grade did not fare any better scoring 4.1 points lower in math and 3 points lower in reading. All results were statistically significant at the .05 level or below.

Incorporating all of the controls from columns 2, 3 and 4 into the regression dramatically changed the TFA coefficients. In all cases, the coefficient for TFA was positive, but it was only statistically significant for 8th grade math. Here, TFA states scored approximately 1.9 points higher than states with no TFA corps members.

Column 6 incorporates state fixed effects into the model. This approach estimates the differences in student scores within a state over time. In this case that means comparing a state's scores before and after they have TFA. In 8th grade math, 8th grade reading and 4th grade reading the coefficients were positive but not statistically significant. A negative coefficient was found for 4th grade math although it too was not statistically significant. Variation within a given year was examined in column 7. For 8th grade reading, TFA produced a statistically significant 1.4 point improvement. In all other subjects no significant results were found.

State and year to year fixed effects were combined in column 8. A positive though statistically insignificant coefficient was found for 4th grade reading, 8th grade math and 8th grade reading. In 4th grade math a negative coefficient was found, but it too was not statistically significant.

The results from this study do not seem to suggest any strong relationship between the presence of TFA within a state and student achievement. When some sets of controls were considered, TFA showed a strong positive impact on achievement. On other groups of controls the impact was just the opposite. These extremes were moderated when all factors were considered producing only one significant result, a 1.9 point increase in 8th grade math.

Conclusion

Student achievement is influenced by an enormous amount of factors. Disentangling these effects can be incredibly challenging especially when data is analyzed above the individual student level. This is doubly the case for Teach for America which despite its rapid growth, still accounts for less than one percent of the teachers in this country. This study analyzed the impact of TFA on the state level over a period of 19 years. Results did not indicate a strong link between having TFA and higher student achievement. The lack of consistent findings may be due to the challenge of trying to capture the impacts of a small segment of the teaching population when examining large aggregate data. While the group of students tested for the NAEP are a representative sample of the students within a state, there is no guarantee the sample student's teachers were also a representative sample. Due to the small number of TFA corps members it is quite possible their students were not tested or were not tested in large enough numbers to create a discernable impact. It is thus recommended that future studies pursue data that is disaggregated to a level below the state level with the ideal being the individual student level.

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Appendix

Figure 1b. Average 4th Grade NAEP Mathematics Score. 1990-2009.

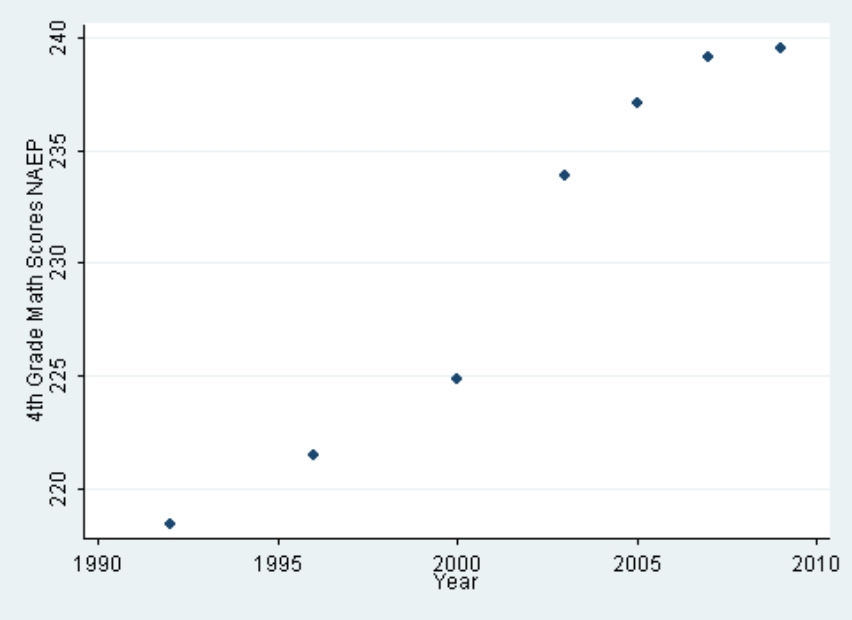

Figure 1c. Average 4th Grade NAEP Reading Score. 1990-2009.

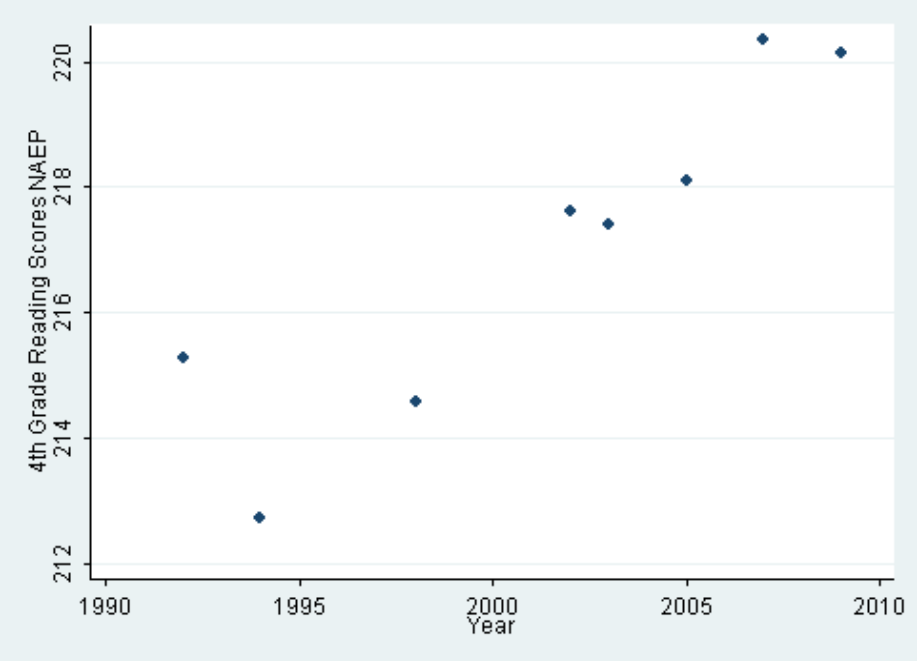

Figure 1d. Average 8th Grade NAEP Reading Score. 1990-2009.

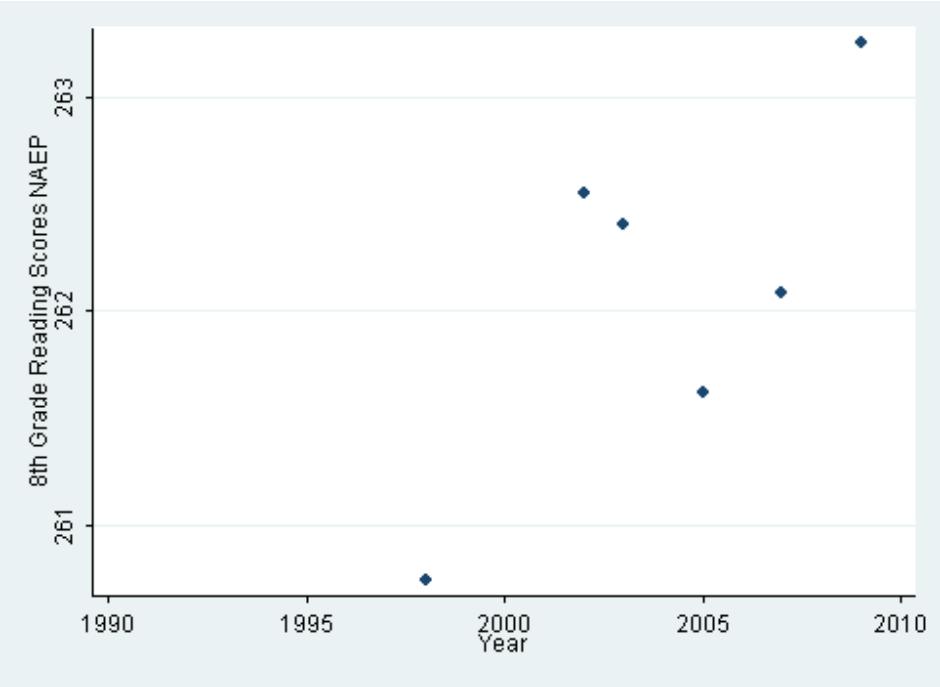

Table 3. Average State Score by Grade and Subject

State	4th Math	8th Math	4th Reading	8th Reading	State	4th Math	8th Math	4th Reading	8th Reading
Alabama	220.4021	260.3098	210.0776	253.2852	Montana	236.9464	285.8663	224.4615	270.128
Alaska	233.3644	280.2463	212.0532	258.3447	Nebraska	232.7959	281.3478	221.456	267.5634
Arizona	224.6052	270.2387	207.8772	256.6779	Nevada	227.0361	270.2166	208.8056	253.2617
Arkansas	226.1255	265.3562	213.14	257.9268	New Hampshire	243.6088	283.7824	227.1837	270.2171
California	221.5177	264.8248	204.6588	251.5036	New Jersey	238.7158	281.3533	225.1279	270.0386
Colorado	234.0961	279.0232	221.2008	265.5628	New Mexico	220.8072	262.7044	207.2473	253.1183
Connecticut	237.6111	280.1224	226.9099	268.1159	New York	232.1324	274.487	219.6993	264.7604
Delaware	231.6311	273.6047	219.4962	263.8736	North Carolina	234.0493	273.4994	217.4951	261.1919
District of Columbia	203.1466	240.4526	189.6344	239.3963	North Dakota	237.34	286.2649	224.7275	269.0644
Florida	231.013	268.715	215.1976	258.6038	Ohio	236.2324	278.5807	222.4007	267.6613
Georgia	226.5338	267.652	213.5733	258.1026	Oklahoma	230.3328	270.924	216.3863	261.295
Hawaii	224.5381	263.4029	206.6932	251.1938	Oregon	233.1347	280.0482	217.0089	265.3223
Idaho	234.4993	279.4539	220.6802	264.993	Pennsylvania	235.7711	278.5775	221.1573	266.9552
Illinois	233.2855	275.8703	217.8366	264.3167	Rhode Island	228.4115	270.7382	218.5757	260.7139
Indiana	235.8074	278.8373	220.8002	264.1043	South Carolina	227.5685	272.6173	211.9038	257.0197
Iowa	236.5257	283.2109	223.1396	266.7117	South Dakota	240.5426	287.8171	222.5592	269.5423
Kansas	242.543	286.106	222.2263	267.3267	Tennessee	224.8546	267.5464	213.6778	259.4042
Kentucky	227.1675	270.4678	218.4571	264.3764	Texas	234.4856	274.8175	216.3372	260.4035
Louisiana	221.0113	260.8298	205.0133	253.4779	Utah	233.0221	278.7872	219.4614	263.6495
Maine	237.0783	283.1618	225.3593	269.7336	Vermont	239.3597	286.5901	227.3907	271.2955
Maryland	230.8497	275.1262	217.7951	263.394	Virginia	234.2992	277.2888	222.5489	267.3253
Massachusetts	240.6015	286.8977	229.5758	272.1478	Washington	237.966	283.1812	220.4444	265.6497
Michigan	232.0431	274.4947	218.0789	262.4911	West Virginia	227.7713	266.3751	215.9376	258.2839
Minnesota	240.0099	287.0667	222.7975	268.2447	Wisconsin	237.5324	282.4902	222.5116	265.7342
Mississippi	217.9567	257.7098	204.4884	252.085	Wyoming	235.3919	279.6741	222.1985	266.0946
Missouri	232.21	277.0908	220.1687	265.5258	Total	231.3127	274.4608	217.26	262.1599

Table 5 4th Grade Math	(1) TFA Only	(2) Student Char.	(3) School Policy	(4) Socioeconomic	(5) All Controls	(6) State FE	(7) Time FE	(8) State and Year FE
Teach for America	-1.667	5.746***	-6.651***	-2.360**	1.271	-0.934	0.379	-0.686
	(1.285)	(1.511)	(1.273)	(0.949)	(1.023)	(0.837)	(0.770)	(0.705)
% Asian		-0.152***			-0.263***	0.531	-0.200***	-0.030
		(0.054)			(0.037)	(0.482)	(0.028)	(0.414)
% Black		-0.386***			-0.284***	0.469*	-0.233***	-0.004
		(0.049)			(0.048)	(0.242)	(0.036)	(0.224)
% Hispanic		-0.161***			-0.234***	0.179	-0.222***	-0.153
		(0.055)			(0.047)	(0.147)	(0.035)	(0.129)
% Native American		-0.211*			-0.001	0.334	-0.143**	-0.403
		(0.127)			(0.087)	(0.469)	(0.065)	(0.399)
% Free Lunch Eligible		-0.022			0.032	0.062*	-0.193***	-0.007
		(0.061)			(0.038)	(0.036)	(0.033)	(0.031)
TotalEnroll			0.000**		0.000***	-0.000*	0.000***	-0.000
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Pupils Per Teacher			-0.511**		-0.536***	-0.908***	-0.721***	-0.461*
			(0.252)		(0.180)	(0.287)	(0.134)	(0.266)
Expenditure Per Student			0.002***		0.001*	0.002***	0.000	0.001**
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Unemployment Rate				0.397	0.372	1.015***	-0.142	0.132
				(0.269)	(0.248)	(0.191)	(0.222)	(0.231)
Per Capita Personal Income				0.001***	0.001***	0.000**	0.000**	-0.000
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total Population				0.000**	-0.000***	0.000***	-0.000***	0.000***
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Violent Crime Rate				-0.019***	-0.016***	-0.005**	-0.008***	-0.004
				(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Property Crime Rate				-0.001	0.002***	0.001	0.002***	0.000
				(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Observations	331	323	280	280	272	272	272	272
R-squared	0.005	0.238	0.394	0.703	0.782	0.904	0.884	0.935

Table 6 8th Grade Math	(1) TFA Only	(2) Student Char.	(3) School Policy	(4) Socioeconomic	(5) All Controls	(6) State FE	(7) Time FE	(8) State and Year FE
Teach for America	-2.614**	7.413***	-7.694***	-4.086***	1.906**	1.141	1.196	0.620
	(1.306)	(1.325)	(1.421)	(1.035)	(0.963)	(0.758)	(0.915)	(0.698)
% Asian		-0.228***			-0.322***	0.268	-0.285***	0.209
		(0.046)			(0.033)	(0.466)	(0.032)	(0.428)
% Black		-0.451***			-0.380***	0.580***	-0.362***	0.159
		(0.041)			(0.044)	(0.215)	(0.042)	(0.212)
% Hispanic		-0.219***			-0.327***	-0.216	-0.323***	-0.227
		(0.047)			(0.043)	(0.145)	(0.041)	(0.139)
% Native American		-0.103			0.040	-0.481	-0.044	-0.864**
		(0.114)			(0.083)	(0.374)	(0.078)	(0.343)
% Free Lunch Eligible		-0.128**			-0.116***	0.003	-0.235***	-0.025
		(0.052)			(0.034)	(0.034)	(0.037)	(0.031)
TotalEnroll			0.000		0.000***	-0.000***	0.000***	-0.000***
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Pupils Per Teacher			-0.395		-0.491***	-0.403	-0.639***	-0.209
			(0.276)		(0.169)	(0.270)	(0.158)	(0.273)
Expenditure Per Student			0.002***		0.000	0.001*	-0.000	0.001**
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Unemployment Rate				0.247	0.090	0.392**	0.003	0.428*
				(0.288)	(0.230)	(0.184)	(0.257)	(0.246)
Per Capita Personal Income				0.001***	0.001***	0.000***	0.000***	0.000
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total Population				0.000**	-0.000***	0.000***	-0.000***	0.000***
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Violent Crime Rate				-0.020***	-0.011***	-0.005**	-0.006***	-0.004
				(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Property Crime Rate				-0.001	0.002***	0.001	0.002***	0.001
				(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Observations	365	353	314	314	302	302	302	302
R-squared	0.011	0.405	0.262	0.639	0.803	0.816	0.836	0.857

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
4th Grade Reading	TFA Only	Student Char.	School Policy	Socioeconomic	All Controls	State FE	Time FE	State and Year FE
Teach for America	-5.614***	3.131***	-8.576***	-4.419***	0.359	0.365	0.188	0.131
	(0.884)	(0.851)	(0.991)	(0.797)	(0.723)	(0.742)	(0.723)	(0.694)
% Asian		-0.230***			-0.237***	0.956**	-0.236***	1.326***
		(0.030)			(0.025)	(0.411)	(0.025)	(0.392)
% Black		-0.316***			-0.243***	0.112	-0.231***	0.502**
		(0.027)			(0.034)	(0.206)	(0.034)	(0.213)
% Hispanic		-0.217***			-0.220***	-0.231*	-0.212***	-0.164
		(0.030)			(0.033)	(0.131)	(0.033)	(0.128)
% Native American		-0.379***			-0.240***	-1.285***	-0.242***	-0.909**
		(0.075)			(0.063)	(0.416)	(0.064)	(0.393)
% Free Lunch Eligible		-0.161***			-0.167***	-0.039	-0.175***	-0.023
		(0.034)			(0.026)	(0.030)	(0.029)	(0.029)
TotalEnroll			0.000***		0.000***	-0.000**	0.000***	-0.000**
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Pupils Per Teacher			-1.022***		-0.786***	-0.269	-0.781***	-0.469*
			(0.199)		(0.126)	(0.245)	(0.125)	(0.250)
Expenditure Per Student			0.001***		-0.000	0.001*	-0.000	0.001**
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Unemployment Rate				0.144	0.166	0.215	0.033	-0.046
				(0.239)	(0.182)	(0.178)	(0.200)	(0.216)
Per Capita Personal Income				0.000***	0.000***	0.000	0.000***	0.000
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total Population				0.000*	-0.000***	0.000***	-0.000***	0.000***
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Violent Crime Rate				-0.011***	-0.006***	-0.003	-0.007***	-0.006***
				(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Property Crime Rate				-0.002***	0.000	-0.001	0.000	-0.000
				(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Observations	370	363	319	319	312	312	312	312
R-squared	0.099	0.544	0.307	0.609	0.802	0.539	0.812	0.614

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 8th Grade Reading	(1) TFA Only	(2) Student Char.	(3) School Policy	(4) Socioeconomic	(5) All Controls	(6) State FE	(7) Time FE	(8) State and Year FE
Teach for America	-5.279***	2.363***	-6.690***	-3.035***	1.146	0.619	1.414**	0.801
	(0.797)	(0.657)	(0.930)	(0.823)	(0.706)	(0.703)	(0.708)	(0.671)
% Asian		-0.222***			-0.228***	0.561	-0.239***	0.353
		(0.023)			(0.026)	(0.714)	(0.026)	(0.691)
% Black		-0.225***			-0.208***	0.129	-0.221***	0.231
		(0.022)			(0.037)	(0.282)	(0.037)	(0.276)
% Hispanic		-0.205***			-0.221***	-0.275*	-0.229***	-0.142
		(0.024)			(0.034)	(0.164)	(0.035)	(0.162)
% Native American		-0.226***			-0.145**	-0.460	-0.133**	-0.521
		(0.054)			(0.060)	(0.566)	(0.061)	(0.555)
% Free Lunch Eligible		-0.248***			-0.218***	-0.066**	-0.188***	-0.049
		(0.027)			(0.028)	(0.031)	(0.031)	(0.030)
TotalEnroll			0.000**		0.000***	0.000	0.000***	-0.000
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Pupils Per Teacher			-0.940***		-0.626***	-0.278	-0.581***	-0.098
			(0.192)		(0.128)	(0.277)	(0.129)	(0.276)
Expenditure Per Student			0.000		-0.000	0.000	-0.000	0.000
			(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Unemployment Rate				-0.254	0.046	-0.258	0.004	-0.466*
				(0.290)	(0.212)	(0.205)	(0.236)	(0.236)
Per Capita Personal Income				0.000	0.000**	-0.000	0.000***	0.000
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total Population				0.000	-0.000***	-0.000	-0.000***	0.000
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Violent Crime Rate				-0.011***	-0.004**	-0.003	-0.005**	-0.002
				(0.002)	(0.002)	(0.004)	(0.002)	(0.004)
Property Crime Rate				-0.002***	0.000	-0.000	0.000	-0.000
				(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Observations	283	279	232	232	228	228	228	228
R-squared	0.135	0.691	0.270	0.527	0.791	0.136	0.798	0.257

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1